CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

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QC-ABSTRACT

Name of Work:- Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.

Sl No.	Item	Quantity As Per BOQ	Required No's of tests	Actual No's of tests as per Frequency	Tests Results
1	WMM	364.39 cum			
	Gradation		4	4	Pass
	Atterberg Limits		4	4	Pass
	Aggregate Impact Value		2	2	Pass
	Shape Test		1	1	Pass
2	BC	382.39 sqm			
	Quality Binder		1	1	Pass
	Aggregate Impact Value		1	1	Pass
	Shape Test		1	1	Pass
	Specific gravity		1	1	Pass
	Stability Of Mix		1	1	Pass
	Gradation		1	1	Pass
	Bitumin Content		1	1	Pass

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

Assistant Executive Engineer
T. Dasarahalli Sub Division
Bagalagunte, BBMP
Bangalore-560073

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Job No.: CACE/NABL/2022/0[illegible] Date: 10.03.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: **Sri. H.S Girish,** Contractor, Bangalore.
Name of Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
BIS code:	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Wet Mix Macadam
Date of Testing	: 10.03.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	10.90	11.20	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	12.60	12.80	
	Combined Flakiness & Elongation index	23.50	24.00	

Note:

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Job No.: CACE/BBMP/GYA/W.No.71/2021-22 Date : 17.03.2022

GRADATION FOR WMM

Client : **Assistant Executive Engineer,** Hegganahalli Sub Division, BBMP, Bangalore.

Agency : **Sri. Girisha Y A (Ananya Associates),** Contractor, Bangalore.

Name of Work : Filling of Potholes in ward No.71 Hegganahalli

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 17.03.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, grams 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	189	189	1.9	98.1	95-100
22.4	2420	2609	26.1	73.9	60-80
11.2	2189	4798	48.0	52.0	40-60
4.75	1845	6643	66.4	33.6	25-40
2.36	1156	7799	78.0	22.0	15-30
0.600	535	8334	83.3	16.7	8-22
0.075	1285	9619	96.2	3.8	0-5

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Job No.: CACE/BBMP/HSG/148/2022-2023 Date : 10.05.2022

GRADATION FOR WMM

Client	**: Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**: Sri. H.S Girish,** Contractor, Bangalore.
Name of Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
IS Code:	: IS 2386 (Part 1):1963(RA 2011)
Date of Testing	: 10.05.2022
Material Type	: Wet Mix Macadam

Oven Dry.Wt, grams 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	179	179	1.8	98.2	95-100
22.4	2430	2609	26.1	73.9	60-80
11.2	2158	4767	47.7	52.3	40-60
4.75	1832	6599	66.0	34.0	25-40
2.36	1168	7767	77.7	22.3	15-30
0.600	542	8309	83.1	16.9	8-22
0.075	1358	9667	96.7	3.3	0-5

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Job No.: CACE/BBMP/HSG/148/2022-2023 Date : 05.04.2022

GRADATION FOR WMM

Client	: **Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: **Sri. H.S Girish,** Contractor, Bangalore.
Name of Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
IS Code:	: IS 2386 (Part 1):1963(RA 2011)
Date of Testing	: 05.04.2022
Material Type	: Wet Mix Macadam

Oven Dry.Wt, grams 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	184	184	1.8	98.2	95-100
22.4	2426	2610	26.1	73.9	60-80
11.2	2180	4790	47.9	52.1	40-60
4.75	1856	6646	66.5	33.5	25-40
2.36	1168	7814	78.1	21.9	15-30
0.600	525	8339	83.4	16.6	8-22
0.075	1298	9637	96.4	3.6	0-5

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Job No.: CACE/BBMP/HSG/148/2022-2023 Date : 10.03.2022

GRADATION FOR WMM

Client	**: Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**: Sri. H.S Girish,** Contractor, Bangalore.
Name of Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
IS Code:	: IS 2386 (Part 1):1963(RA 2011)
Date of Testing	: 10.03.2022
Material Type	: Wet Mix Macadam

Oven Dry.Wt, grams 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	172	172	1.7	98.3	95-100
22.4	2435	2607	26.1	73.9	60-80
11.2	2162	4769	47.7	52.3	40-60
4.75	1839	6608	66.1	33.9	25-40
2.36	1152	7760	77.6	22.4	15-30
0.600	549	8309	83.1	16.9	8-22
0.075	1362	9671	96.7	3.3	0-5

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Job No.: CACE/BBMP/HSG/148/2022-2023 Date: : 05.04.2022

Aggregate Impact Value

Client	**: Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**: Sri. H.S Girish,** Contractor, Bangalore.
Name of the Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
IS Code	: IS 2386 (Part 4):1963(RA 2011)
Type of Mix	: Wet Mix macadam
Date of Testing	: 05.04.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	296	296	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.11	22.51	**22.31**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

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Job No.: CACE/BBMP/HSG/148/2022-2023 Date: : 10.03.2022

Aggregate Impact Value

Client	**: Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**: Sri. H.S Girish,** Contractor, Bangalore.
Name of the Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
IS Code	: IS 2386 (Part 4):1963(RA 2011)
Type of Mix	: Wet Mix macadam
Date of Testing	: 10.03.2022

Sl No.	Details	Test No. 1	Test No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	296	296	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.51	22.92	**22.71**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

Assistant Executive Engineer
T. Dasarahalli Sub Division
Bagalagunte, BBMP
Bangalore-560073

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Job No.: CACE/BBMP/GYA/W.No.71/2021-22 Date : 13.03.2022

ATTERBERG LIMITS TEST FOR WMM

Client : **Assistant Executive Engineer,** Hegganahalli Sub Division, BBMP, Bangalore.
Agency : **Sri. Girisha Y A (Ananya Associates),** Contractor, Bangalore.
Name of Work : Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
IS Code: : IS 2720(Part 5):1985
Date of Testing : 11.03.2022 to 13.03.2022
Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	22.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/HSG/148/2022-2023

Date : 07.04.2022

ATTERBERG LIMITS TEST FOR WMM

Client	: **Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: **Sri. H.S Girish,** Contractor, Bangalore.
Name of Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
IS Code:	: IS 2720(Part 5):1985
Date of Testing	: 05.04.2022 to 07.04.2022
Material Type	: Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	21.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/HSG/148/2022-2023 Date : 12.03.2022

ATTERBERG LIMITS TEST FOR WMM

Client	**: Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**: Sri. H.S Girish,** Contractor, Bangalore.
Name of Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
IS Code:	: IS 2720(Part 5):1985
Date of Testing	: 10.03.2022 to 12.03.2022
Material Type	**:** Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	20.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/HSG/148/2022-2023 Date : 12.05.2022

ATTERBERG LIMITS TEST FOR WMM

Client	**: Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**: Sri. H.S Girish,** Contractor, Bangalore.
Name of Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
IS Code:	: IS 2720(Part 5):1985
Date of Testing	: 10.05.2022 to 12.05.2022
Material Type	**:** Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/HSG/148/2022-2023

Date : 15.05.2022

Specific Gravity And Water Absorption Test

Client	: **Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: **Sri. H.S Girish,** Contractor, Bangalore.
Name of the Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
BIS Code	: IS 2386(Part 3):1963
Type of Mix	: Bituminous Concrete
Date of Testing	: 12.05.2022 to 15.05.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2020	2022	2024	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1265	1267	1269	
4	Weight of saturated surface dry aggregate in air	W_3 g	2016	2018	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_5)$ g	751	751	751	
6	Weight of oven dried aggregate	W_4 g	2010	2011	2012	
7	Specific Gravity	$W_4/(W_3-W_5)$	2.676	2.678	2.679	2.678
8	Apparent Specific gravity	$W_4/(W_4-W_5)$	2.698	2.703	2.708	2.703
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.30%	0.35%	0.40%	0.35%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%(MORTH table 500.16)

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Date : : 15.05.2022

Job No.: CACE/BBMP/HSG/148/2022-2023

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**: Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**: Sri. H.S Girish,** Contractor, Bangalore.
Name of Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Bituminous Concrete
Date of Testing	: 15.05.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	11.6	12.2	Combined Flakiness & Elongation index Max 35%
2	Elongation Index	13.2	13.4	
	Combined Flakiness & Elongation index	24.80	25.60	

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Job No.: CACE/BBMP/HSG/148/2022-2023 Date : : 15.05.2022

Aggregate Gradation Test

IS : 2386 Part I

Client	**: Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**: Sri. H.S Girish,** Contractor, Bangalore.
Name of the Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
BIS Code	: IS 2386(Part 1):1963
Sample I / D	: Hot Mix Plant, Bangalore
Type of Mix	: Bituminous Concrete
Date of Testing	: 15.05.2022

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	415	8.30	8.30	91.70	90 - 100	
9.5	482	9.64	17.94	82.06	70 - 88	
4.75	635	12.70	30.64	69.36	53 - 71	
2.36	682	13.64	44.28	55.72	42 - 58	
1.18	520	10.40	54.68	45.32	34 - 48	
0.600	546	10.92	65.60	34.40	26 - 38	
0.300	489	9.78	75.38	24.62	18 - 28	
0.150	366	7.32	82.70	17.30	12 - 20	
0.075	482	9.64	92.34	7.66	4 - 10	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	420	8.40	8.40	91.60	90 - 100	
9.5	549	10.98	19.38	80.62	70 - 88	
4.75	682	13.64	33.02	66.98	53 - 71	
2.36	533	10.66	43.68	56.32	42 - 58	
1.18	559	11.18	54.86	45.14	34 - 48	
0.600	546	10.92	65.78	34.22	26 - 38	
0.300	682	13.64	79.42	20.58	18 - 28	
0.150	198	3.96	83.38	16.62	12 - 20	
0.075	482	9.64	93.02	6.98	4 - 10	

Note:

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For CIVIL AIM CONSULTANTS & ENGINEERS

Assistant Executive Engineer

Authorised Signatory

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Job No.: CACE/BBMP/HSG/148/2022-2023

Date : : 15/05/2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	**: Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**: Sri. H.S Girish,** Contractor, Bangalore.
NAME OF THE WORK	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
SAMPLE ID	: Hot Mix Plant, Bangalore
DATE OF TESTING	: 15/05/2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	472
3. Weight of Asphalt and Mineral matter Extracted, g	27.5	28
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	27.5	28
7. Bitumen content in %	5.50	5.60
8. Average	5.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	13.8	13.8	2.9	97.1	90 - 100
9.5	65.8	79.6	16.8	83.2	70 - 88
4.75	90.3	169.9	36.0	64.0	53 - 71
2.36	46.2	216.1	45.7	54.3	42 - 58
1.18	35.8	251.9	53.3	46.7	34 - 48
0.600	55.3	307.2	65.0	35.0	26 - 38
0.300	42.8	350	74.1	25.9	18 - 28
0.150	34.9	384.9	81.5	18.5	12 - 20
0.075	42.8	427.7	90.5	9.5	4 - 10

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SIEVE SIZE	Test 2				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	14.9	14.9	3.2	96.8	90 - 100
9.5	66.2	81.1	17.2	82.8	70 - 88
4.75	92.8	173.9	36.8	63.2	53 - 71
2.36	45.3	219.2	46.4	53.6	42 - 58
1.18	48.2	267.4	56.7	43.3	34 - 48
0.600	56.3	323.7	68.6	31.4	26 - 38
0.300	45.8	369.5	78.3	21.7	18 - 28
0.150	37.9	407.4	86.3	13.7	12 - 20
0.075	32.6	440	93.2	6.8	4 - 10

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Aggregate Impact Value

Client	**: Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**: Sri. H.S Girish,** Contractor, Bangalore.
Name of the Work	: Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
BIS Code	: IS 2386(Part 4):1963
Source / Location	: Hot Mix Plant, Bangalore
Type of Mix	: Bituminous Concrete
Date of Testing	: 15.05.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	85.5	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	297	297.5	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	22.05	22.32	**22.19**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%(MORTH table no.500.16)

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Job No.: CACE/BBMP/HSG/148/2022-2023 Date: 15.05.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** T.Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**Sri. H.S Girish,** Contractor, Bangalore.
Name of the Work	:	Filling of pot holes in main roads and cross roads in Dasarahalli ward no 15.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	15.05.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.44	10.82	9 Kn (min)
2	Marshal flow, mm	2.69	7.51	2 – 4
3	Percent air voids in Mineral Aggregate	13.45	14.52	13 – 15
4	Voids in Compacted Mix	3.84	4.15	3 – 6
5	Percent Voids filled with Bitumen	69.29	70.12	65 - 75
6	Density, g/cc	2.25	2.26	--

Note:

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